**DIPLOMA IN INFORMATION AND COMMUNICATION TECHNOLOGY-MODULE 1.**

**OPERATING SYSTEMS-COURSE OUTLINE.**

**Objectives.**

By the end of this module the trainee should be able to:

1. Understand the principles of operating systems
2. Appreciate the functions of operating systems
3. Use operating systems in computer environment
4. **INTRODUCTION TO OPERATING SYSTEMS**

* Meaning and importance of operating system
* Definition of operating systems terminology’s;
* Processor
* Files
* System calls
* Shell
* Virtual machines
* The history of operating systems
* Description of operating systems structure
* Explanation of types of operating systems
* Explanation of job control;
* Command language
* Job control language
* System messages

1. **PROCESS MANAGEMENT**

* Process models;
* Process level
* Process state/models
* Inter process communication
* Deadlocks;
* Deadlocks
* Deadlock detection and recovery
* Deadlock avoidance
* Deadlock prevention
* Description of error diagnosis

1. **MEMORY MANAGEMENT**

* Memory management;
* Definition of memory management
* Functions of memory management
* Memory allocation technique;
* Paging
* Swapping
* Segmentation
* Overlays
* Virtual memory;
* Basic concepts;
* Paging
* Segmentation
* Associative memory

1. **DEVICE I/O MANAGEMENT**

* Objectives of device (I/O) management;
* Character code independence
* Device independence
* Efficiency
* Uniform retreatment of devices
* Principles of device (I/O) hardware
* Principles of device (I/O) software
* Disks and disk operations;
* Disk hardware
* error handling
* RAM disk
* Computer clocking system
* Exploration of computer terminals;
* Terminal hardware
* Memory mapped terminal
* Input software
* Output software
* Virtual devices;
* Objectives of virtual devices
* History of virtual devices
* Spooling
* Buffering
* Caching

1. **FILE MANAGEMENT**

* **F**ile management
* Definition of file management
* Objectives of file management
* File systems;
* Naming
* Structures
* Types
* Attributes
* Operations
* File management techniques;
* File implementation
* Directory implementation
* Sharing
* Disk space management
* File system management
* File system reliability
* File system performance
* Logical file system
* Physical file system
* File allocation
* File protection and security;
* Meaning and importance
* Access control verification
* Audit trail